UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,679	09/15/2000	Fernando C. M. Martins	10559/195001/P8367	1908

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EXAMINER
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ART UNIT	PAPER NUMBER
2173	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/662,679	MARTINS, FERNANDO C. M.
	Examiner	Art Unit
	Kieu D Vu	2173

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 February 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>3,7,10-12,15-21 and 31-39</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>3, 7, 10-12, 15-21, 31-39</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This Final Office Action is in response to the Amendment filed 02/11/05.

Claim Objections

2.   Claims 3, 7, and 10-12 are objected since they contain typographical errors.

Each of claims 3, 7, and 10-12 depends on claim 30 which had been canceled.

In this Office Action, it is assumed that this is a typographical error and that each

of claims 3, 7, and 10-12 is meant to depend on claim 31 which is the only independent

claim reciting "A method".

3.   Claim 33 is objected since it contains a typographical error. It appears that the

word "eight" in line 5 is a typographical error. It should be rewritten as "a".

4.   Claims 34-35 depend on claim 33, thus they are objected on the same rationale

applied to claim 33 above. Claims 34-35 are further objected because of the following

reason:

The preamble of claim 34 recites "A method as in claim 33", however, claim 33 is

claiming "A computer program product". In this Office Action, it is assumed that the word

"method" is a typographical error and that claim 34 is meant to recite "A computer

program product as in claim 33".

Same rationale is applied for claim 35.

5.   Claims 38-39 depend on claim 33; they are objected on the same rationale

applied to claim 33 above. Claims 38-39 are further objected because of the following

reason:

In claim 38, it appears that the phrase "A computer program" is a typographical error. The phrase should be rewritten as "A computer program product".

Same rationale is applied for claim 39.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Claims 3, 7, 11-12, 15-21 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8.   Claim 3 recites the limitation "the predefined gestures" in line 3. There is insufficient antecedent basis for this limitation in the claim.

9.   Claim 7 recites the limitation "said defined gesture" in line 4. There is insufficient antecedent basis for this limitation in the claim.

10.   Claim 11 recites the limitation "the video clip" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Since claim 12 depends on claim 11, same rationale is applied for claim 12.

11.   Claim 15 recites the limitation "the recognition engine" in line 2. There is insufficient antecedent basis for this limitation in the claim.

12.   Claim 16 recites the limitation "the temporal segmentor" in line 4. There is insufficient antecedent basis for this limitation in the claim.

13.   Claim 17 recites the limitation "the timing data source" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Since claims 18-21 depends on claim 17, same rationale is applied for claim 18-21.

14.   Claim 19 recites the limitations "the recognition engine " in lines 2-3 and "the video clip" in line 4. There is insufficient antecedent basis for these limitations in the claim.

Since claims 20-21 depends on claim 19, same rationale is applied for claim 20-21.

15.   Claim 35 recites the limitations "said audio signal" in lines 2-3 and "the meeting data" in lines 3-4. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17.   Claims 3, 7, 10-12, 15-21, 31-34, 36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. ("Suzuki", USP 6,227,968) and Nguyen (USP 6,256,033).

Regarding claims 31 and 33, Suzuki teaches receiving audio data which represents music that has a beat formed of an audibly perceptible periodic pulse contained within the audio data (i.e. see col. 7, lines 24-34, which describes how beat data is correlated with audio data/songs, implying that the beat data from each song

must be extracted for proper correlation); obtaining beat data indicative of said beat

data for said audio data; playing said audio data (col 7, lines 24-34), and using said beat

to determine a gesture window associated with said audio data ; obtaining video data

during the time of said gesture window (Suzuki teaches determining a gesture window

within which a gesture (dance move) should occur, based on a specified time window

relative to the beat data, and Suzuki plays the audio data and obtains gesture data

during a time that the audio data is being played. See col. 7, lines 35-50. Also, see col.

1, lines 9-13, which describes how the player is to perform the action in time with the

rhythm (i.e. the method checks if the player made the proper gesture in time with the

beat). Suzuki segments the gesture data according to the specified time window (time

between beats), and Suzuki automatically determines whether a predefined gesture

occurred within the specified timing window (i.e. if the appropriate dance move/gesture

occurred within the timing window for score keeping). See col. 7, lines 25-55 and col.

10, line 30 - col. 11, line 37). Suzuki does not teach Suzuki does not teach that the

gesture data is obtained through video data, wherein the video data is segmented to

segmenting said video data to form individual frames of video data and investigating

said frames to determine gesture probabilities for target gestures contained in said

frames; and determining if a gesture probability associated with said different gestures

represents a target gesture to be determined during said frames. However, Nguyen

discloses a method for recognizing gestures contained in video data, wherein the video

data is segmented to segmenting said video data to form individual frames of video data

and investigating said frames to determine gesture probabilities for target gestures

contained in said frames; and determining if a gesture probability associated with said

different gestures represents a target gesture to be determined during said frames. See

col. 2, lines 23-25, which states, "The frame captures the person in the action of

performing the gesture at one moment in time" and col. 2, lines 28-34, which states,

"These sequence of frame data sets taken over a period of time..." The method

determines information related to a gesture occurring in the video clip only at the

specified timing. See col. 3, lines 11-14, which describes "determining particular

coordinates of the subject at a particular time". Also see col. 5, lines 13-45 of Nguyen.

It would have been obvious to one of ordinary skill in the art to substitute the gesture

recognition method (step-on base of a floor panel) in the dance game of Suzuki with the

video gesture recognition method of Nguyen, such that the video data is segmented to

form individual frames of specified timing according to beat data as supported by the

beat timing window of Suzuki of Suzuki according to beat data as supported by the beat

timing window of Suzuki, because the step-on base of Suzuki only captures the

movements of the player's feet, and does not recognize the movements of the rest of

the body as intended in Suzuki (col. 1, lines 44-51), wherein the video gesture

recognition method of Nguyen captures the movements of the entire body.

Regarding claim 32, Suzuki teaches a system comprising an audio receiving part

that receives audio data representing music that has a beat formed of an audibly

perceptible periodic pulse contained within the audio data (col. 7, lines 24-34); a

processor, operative to determine said beat data indicative of said beat (col. 7, lines 24-

34), and to define a gesture window of time based on said beat, during which gesture

window, a specified gesture should occur (Suzuki teaches determining a gesture

window within which a gesture (dance move) should occur, based on a specified time

window relative to the beat data, and Suzuki plays the audio data and obtains gesture

data during a time that the audio data is being played. See col. 7, lines 35-50. Also, see

col. 1, lines 9-13, which describes how the player is to perform the action in time with

the rhythm). Suzuki does not teach receiving video and segmenting said video into a

plurality of different frames; and wherein said processor is also operative to recognize

gestures within said frames and determine probabilities of which gestures are

represented within the frames and whether the gestures represent a target gesture

associated with a specified beat data. However, Nguyen discloses a system with a

processor (Fig. 1, 102) for recognizing gestures contained in video data and teaches

segmenting video data into a plurality of different frames. See col. 2, lines 23-25, which

states, "The frame captures the person in the action of performing the gesture at one

moment in time" and col, 2, lines 28-34, which states, "These sequence of frame data

sets taken over a period of time..." The method determines information related to a

gesture occurring in the video clip only at the specified timing. See col. 3, lines 11-14,

which describes "determining particular coordinates of the subject at a particular time".

Nguyen also teaches recognizing gestures within said frames and determine

probabilities of which gestures are represented within the frames and whether the

gestures represent a target gesture associated with a specified beat data. See col. 1,

lines 17-23 and col. 3, lines 11-14. Also see col. 5, lines 13-45 of Nguyen.

It would have been obvious to one of ordinary skill in the art to substitute the gesture recognition method (step-on base of a floor panel) in the dance game of Suzuki with the video gesture recognition method of Nguyen, such that the video data is segmented to form individual frames of specified timing according to beat data as supported by the beat timing window of Suzuki of Suzuki according to beat data as supported by the beat timing window of Suzuki, because the step-on base of Suzuki only captures the movements of the player's feet, and does not recognize the movements of the rest of the body as intended in Suzuki (col. 1, lines 44-51), wherein the video gesture recognition method of Nguyen captures the movements of the entire body.

Regarding claim 3, Nguyen teaches including evaluations of Hidden Markov Models (col. 5, lines 13-45).

Regarding claims 7, 17-18, and 21, the dance game of Suzuki teaches displaying a target gesture to be performed by the subject. The target gesture is a dance move. See col. 12, lines 57-61. The target gesture is displayed on the display subsystem (monitor; col. 12, line 59).

Regarding claim 10, the combination of Suzuki and Nguyen, supra, teaches each video clip contains video frames (Nguyen at col. 7, line 22), and in each frame, the moving regions are identified (Nguyen at col. 8, lines 58-61). Feature vectors (array of key points) are generated for each video frame of the video clip. See Nguyen at col. 8, line 49 - col. 9, line 46, which describes how significant positional coordinates are extracted from each frame to make a comparison to the known gesture coordinates.

Regarding claims 11-12 and 19-20, the method of Suzuki and Nguyen, supra, generates and displays a score based on whether a target movement (gesture) was performed. See Suzuki at col. 11, lines 37-41. The object of the Suzuki dance game is to achieve the highest score by performing the appropriate gestures.

Regarding claim 15, the recognition engine of Suzuki and Nguyen, supra, includes a plurality of Hidden Markov Models. See Nguyen at col. 5, lines 13-18.

Regarding claim 16, the system of Suzuki and Nguyen, supra, includes a video source (Nguyen at Fig. 2, 200), in communication with the temporal segmentor, to provide the video data to the temporal segmentor.

Regarding claims 34, Suzuki teaches obtaining beat data comprises extracting beat data automatically from the audio data (see col. 7, lines 24-34, which describes how beat data is correlated with audio data/songs, implying that the beat data from each song must be extracted for proper correlation).

Regarding claims 36 and 38, Suzuki teaches analyzing said audio data to automatically determine beat data associated with the audio data (col 7, lines 24-34).

18.   Claims 35, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. ("Suzuki", USP 6,227,968), Nguyen (USP 6,256,033), and Miyake (USP 5256832).

Regarding claims 35, 37, and 39, the system of Suzuki and Nguyen does not teach analyzing a MIDI sequence representing said audio signal, and extracting beat data from a specified channel of the meeting data that represents a drumbeat. However, such feature is known in the art as taught by Miyake. Miyake teaches a beat detector

and synchronization control device a MIDI sequence representing said audio signal, and extracting beat data from a specified channel of the meeting data that represents a drumbeat (col 7, lines 54-67). It would have been obvious to one of ordinary skill in the art, having the teaching of Suzuki and Nguyen and Miyake before him at the time the invention was made, to modify the system taught by Suzuki and Nguyen to include analyzes the MIDI data as described above taught by Miyake so that drumbeat can be used as rhythm data in Suzuki's system.

19.   Applicant's arguments filed 02/11/05 have been fully considered but they are not persuasive.

Applicant's argument "Suzuki et al teaches that stepping position is obtained, and teaches nothing about recognition of gestures at all" is not persuasive. Stepping is a movement of the body and can be reasonably interpreted as a gesture.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant's argument "Gesture recognition in Nguyen.... teaches nothing about gesture probabilities for target gestures. Nowhere ...in Nguyen" is not persuasive since Nguyen teaches this feature in col 2, lines 18-65.

20.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kieu D. Vu. The examiner can normally be reached on Mon - Thu from 7:00AM to 3:00PM at 571-272-4057.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca, can be reached at 571-272-4048.

The fax phone numbers for the organization where this application or proceeding is assigned are as follows:
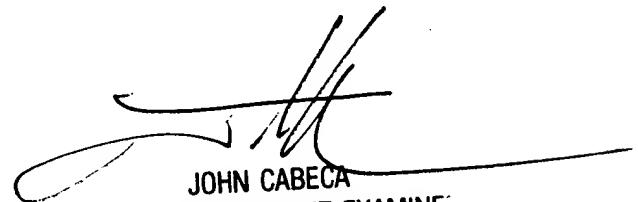
703-872-9306

and / or:

571-273-4057 (use this FAX #, only after approval by Examiner, for "INFORMAL"

or "DRAFT" communication. Examiners may request that a formal paper / amendment

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Information regarding the status of an application may be obtained from the

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Kieu D. Vu

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